General

Guideline Title

Screening for lower extremity peripheral artery disease (PAD) in primary care.

Bibliographic Source(s)

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program. Screening for lower extremity peripheral artery disease in the primary care setting. Austin (TX): University of Texas at Austin, School of Nursing; 2011 May. 16 p. [20 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Strength of recommendations (A, B, C, D, I) and quality of evidence (good, fair, poor) are defined at the end of the "Major Recommendations" field.

Subjective Assessment

This guideline recommends against ankle-brachial index (ABI) routine screening in asymptomatic low risk patients. Routine screening in primary care setting may produce false positives and lead to unnecessary workups and thus more harm than benefit for the asymptomatic patient. (United States Preventive Services Task Force [USPSTF], 2006) (Grade: D; Evidence: Good)

In any patient with an identified risk factor and symptom of peripheral artery disease (PAD), the following is recommended:

1. History of present illness (HPI):
    - Onset, duration, location, severity, aggravating and alleviating factors related to clinical manifestations of lower extremity symptom complaints
    - Lifestyle habits such as diet, exercise, smoking, alcohol or drug use
    - Exercise assessment including 6 minute walk performance, walking velocity over 4 meters at usual and fastest pace
    - PAD walking impairment questionnaire
2. Review of systems
    - General
    - Endocrine
    - Heart/vascular
    - Lungs

- Genitourinary (GU): erectile dysfunction
- Musculoskeletal (MS)
- Neurological
- Skin

3. Past medical history
    - Note hospitalizations, surgeries, and any procedures
    - History of trauma
    - Co-morbid conditions such as: smoking, diabetes, hypertension, congestive heart failure/chronic heart failure (CHF), arrhythmias, cardiovascular disease, sedentary lifestyle, dyslipidemia, obesity, atherosclerosis
4. Medications
    - Current prescription medications
    - Any or all over the counter medications, including alternative medicines or herbal treatments
5. Family history
    - Atherosclerosis
    - Diabetes
    - Hypertension
    - Cardiovascular disease
    - Cerebrovascular accident (CVA)
    - Dyslipidemia
6. Psychosocial history
    - Assess for depression and mental illness
    - Socioeconomic status (occupation, education level, ethnicity)
    - Support systems, coping strategies
    - Smoking history

(Allison et al., 2010; Alzamora et al., 2010; Hayward, 2010; Hirsch et al., 2006; Jacobs et al., 2009; Johnson et al., 2010; Mazimba & Rank, 2010; McDermott et al., 2010; Rosero et al., 2010; Selby, 2008; Sugawara et al., 2010; Smolderen et al., 2009) (Grade: A; Evidence: Good)

Objective Assessment/Physical Examination

- Vital signs: Blood pressure, pulse, height, weight, body mass index (BMI) calculation
- Cardiovascular exam: assess for rhythm regularity, bruits, murmurs (high prevalence with cardiovascular disease [CVD], chronic heart failure [CHF], arrhythmias, and hypertension), peripheral pulses
- Pulmonary exam: assess breath sounds and quality of respirations
- Musculoskeletal: deformities, swelling, or pain with movement and at rest, strength
- Neurological exam: sensory function, mental status
- Skin: color, temperature, ulcerations
- Exercise assessment including 6 minute walk performance

(Armstrong, Tobin, & Mantangi, 2010; Hayward, 2010; Hirsch et al., 2006; Wilson, Laine, & Goldmann, 2007; Mazimba & Rank, 2010; Safar et al., 2009) (Grade: A; Evidence: Good)

Diagnostic Procedures

1. Laboratory studies
    - Lipids
    - Diabetes screening (fasting blood glucose, 2 hour oral glucose tolerance test, or hemoglobin A1c [HbA1c])
2. Diagnostic tests
    - ABI: normal 1.0-1.3, mild <0.90, moderate 0.5-0.7, severe <0.50. An ABI over 1.3 signifies non-compressible vessels and yields a false negative test; as seen in diabetes mellitus, end stage renal disease, and arterial calcifications (as in severe or diffuse PAD). If ABI is >1.3, alternative studies are recommended: Toe-brachial ratio, Doppler ultrasound, computed tomography (CT) angiography, or magnetic resonance (MR) angiography.

(American Diabetes Association [ADA], 2011; Espeland et al., 2008; Hayward, 2010; Hirsch et al., 2006; McDermott et al., 2010; Sugawara et al., 2010; Olin et al., 2010; Premanath & Raghunath, 2010) (Grade: A; Evidence: Good)

Differential Diagnoses

1. Spinal stenosis
2. Peripheral neuropathy
3. Arthritis
4. Venous claudication
5. Nerve root compression
6. Symptomatic Baker's cyst
7. Congestive heart failure/chronic heart failure
8. Anemia
9. Fibromyalgia/polymyalgia rheumatica
10. Restless leg syndrome
11. Ulceration or gangrene
12. Peripheral venous disease (PVD)
13. Compartment syndrome

(Hirsch et al., 2006; Wilson, Laine, & Goldmann, 2007; Mazimba & Rank, 2010) (Grade: B; Evidence: Good)

Referral

Refer patients with ABI >1.30 or less than or equal to 0.90 to cardiologist or vascular specialist. Further screening by specialist may include ultrasound, computed tomography (CT), angiography. (Mazimba & Rank, 2010) (Grade: C; Evidence: Fair)

Follow Up

Obtain records from referral physician, and assess patient's adherence to recommendations of management/treatment. (Hirsh et al., 2006) (Grade: I; Evidence: Poor)

Definitions:

Strength of Recommendations (Based on U.S. Preventive Services Task Force [USPSTF] Ratings)

A. There is good evidence that the recommendation improves important health outcomes. Benefits substantially outweigh harms.

B. There is at least fair evidence that the recommendation improves important health outcomes. Benefits outweigh harms.

C. There is at least fair evidence that the recommendation can improve health outcomes but the balance of benefits and harms is too close to justify a general recommendation.

D. There is at least fair evidence that the recommendation is ineffective or that harms outweigh benefits.

I. Evidence that the recommendation is effective is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Quality of Evidence (Based on USPSTF Ratings)

Good: Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair: Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor: Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Lower extremity peripheral artery disease (PAD)

Guideline Category

Diagnosis

Evaluation

Prevention

Risk Assessment

Screening

Clinical Specialty

Cardiology

Family Practice

Geriatrics

Internal Medicine

Nursing

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Health Plans

Managed Care Organizations

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To provide evidence-based guidelines for screening of lower extremity peripheral artery disease in the primary care setting

Target Population

Adults with increased risk for lower extremity peripheral artery disease seen in primary care

Risk factors include:

Age >50 years with diabetes and one additional risk factor (smoking, dyslipidemia, hypertension, or homocysteinemia)
Age 50-69 years with history of smoking or diabetes
Age ≥70 years
Abnormal lower extremity pulses
Cramping, leg pain that is gradual and predictable in onset; it is relieved by rest and is localized to an area in a single limb
Known coronary, carotid, or renal atherosclerosis

Interventions and Practices Considered

Screening/Diagnosis

1. Subjective assessment including past medical and family history, and symptoms and questionnaires
2. Objective assessment including ankle brachial index (ABI) and palpation of peripheral pulses
3. Diagnostic tests if appropriate, including screening patients at risk for peripheral artery disease (PAD) using Walking Impairment Questionnaire, ABI testing, lipids
4. Differential diagnosis

Management

1. Referral to cardiology or vascular surgery
2. Follow-up

Major Outcomes Considered

- Quality of life
- Complications of peripheral artery disease (PAD) and worsening of co-morbid conditions

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Online searches were performed for dates January 2006-January 2011 of the following databases: CINAHL, Medline, PubMed, Cochrane, EBSCO, UpToDate. Major keywords used in searches: Ankle-Brachial Index (ABI), Peripheral Artery Disease, Screening, Risk Factors, Incidence, Prevalence, Outcomes, Primary Care. Position statements from the American Heart Association (AHA) and American College of Cardiology (ACC) were also reviewed. Additional resources were identified by review of published guidelines.

Number of Source Documents

34

Methods Used to Assess the Quality and Strength of the Evidence

Subjective Review

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence

The U.S. Preventive Services Task Force (USPSTF) grades the quality of the overall evidence for a service on a 3-point scale (good, fair, poor).

Good: Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair: Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor: Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Strength of Recommendations (Based on U.S. Preventive Services Task Force [USPSTF] Ratings)

A. There is good evidence that the recommendation improves important health outcomes. Benefits substantially outweigh harms.

B. There is at least fair evidence that the recommendation improves important health outcomes. Benefits outweigh harms.

C. There is at least fair evidence that the recommendation can improve health outcomes but the balance of benefits and harms is too close to justify a general recommendation.

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I. Evidence that the recommendation is effective is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The guideline was developed by a group of family nurse practitioner (FNP) students and submitted for review to FNP program faculty and expert reviewers. Before submitting to the guideline committee, revisions were made based on reviewer recommendations.

Evidence Supporting the Recommendations

References Supporting the Recommendations

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Type of Evidence Supporting the Recommendations

The type of supporting evidence is specifically stated for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Improved screening and identification of patients with lower extremity peripheral artery disease (PAD)
- Improved diagnosis and referral for management and treatment of lower extremity PAD

- Improved quality of life for patients with lower extremity PAD:
  - Decrease of ischemic pain symptoms
  - Prevention and/or improved management of co-morbidities associated with peripheral artery disease: hypertension, diabetes, dyslipidemia, obesity, cardiovascular disease, congestive heart failure, stroke

Potential Harms

Potential harms of screening include false-positive results, labeling, and the adverse events/cost associated with further work-up.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program. Screening for lower extremity peripheral artery disease in the primary care setting. Austin (TX): University of Texas at Austin, School of Nursing; 2011 May. 16 p. [20 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 May

Guideline Developer(s)

University of Texas at Austin School of Nursing, Family Nurse Practitioner Program - Academic Institution

Source(s) of Funding

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program

Guideline Committee

University of Texas at Austin Family Nurse Practitioner Student Practice Guidelines Committee

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

None

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Request at fsonstein@mail.nur.utexas.edu

Print copies: Available from the University of Texas at Austin, School of Nursing. 1700 Red River, Austin, Texas, 78701-1499, Attn: Nurse Practitioner Program

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

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